

Amendment and Response

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Serial No.: 10/008,645

Confirmation No.: 7296

Filed: November 9, 2001

For: METHODS USING ELECTROPHORETICALLY DEPOSITED PATTERNABLE MATERIAL**Amendments to the Claims**

This listing of claims replaces all prior versions, and listings, of claims in the above-identified application:

Listing of Claims**1-41. Cancelled**

42. **(Original)** A method for use in the production of a display, the method comprising:
providing a substrate assembly including a conductive surface;
providing one or more nonconductive regions on the conductive surface, wherein the one or more nonconductive regions have a thickness less than about 15 microns;
electrophoretically depositing a patternable material mixed with a light emitting material on the conductive surface and the one or more nonconductive regions; and
patterning the patternable material mixed with light emitting material resulting in a patterned layer corresponding to one or more light emitting elements on the conductive surface.
43. **(Original)** The method of claim 42, wherein the method further includes removal of the patternable material of the electrophoretically deposited patternable material mixed with the light emitting material to form the one or more light emitting elements on the conductive surface.
44. **(Original)** The method of claim 42, wherein the one or more nonconductive regions include one or more nonconductive light emitting elements.
45. **(Original)** The method of claim 42, wherein the one or more nonconductive regions include a nonconductive light absorptive black matrix.

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46. **(Original)** A method for use in the production of a color display to deposit a pattern of light emitting elements capable of emitting light of at least two different colors when excited, the display including a face plate having a plurality of spacers extending from one side thereof for use in spacing the face plate from a base plate of the color display, the method comprising:

providing a face plate substrate assembly from which the plurality of spacers extend, a conductive surface of the substrate assembly is exposed in regions between the plurality of spacers; and

using an electrophoretically deposited patternable material to form the pattern of light emitting elements on the conductive surface, wherein using electrophoretically deposited patternable material to form the pattern of light emitting elements on the conductive surface includes:

electrophoretically depositing a patternable layer of a mixture of a patternable material and a first color light emitting material over the conductive surface and adjacent the spacers;

patterning the patternable layer to form regions of the patternable layer corresponding to one or more light emitting elements of a first color;

removing the patternable material from the regions of the patternable layer to form the one or more light emitting elements of the first color on the conductive surface; and

repeating the electrophoretically depositing, patterning, and removing steps using mixtures of patternable material and additional color light emitting material to form one or more light emitting elements of one or more additional colors on the conductive surface.

47. **(Original)** The method of claim 46, wherein the plurality of spacers are nonconductive spacers.

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48. **(Currently Amended)** The method of claim 46, wherein the patternable material is an electrophoretic photoresist.:
49. **(Original)** A method for use in the production of a display, the method comprising:
providing a substrate assembly including a conductive surface;
providing one or more nonconductive regions formed on the conductive surface, wherein the one or more nonconductive regions have a thickness less than about 15 microns;

forming a layer of patternable material by electrophoresis over the conductive surface and the one or more nonconductive regions; and

patterning the layer of patternable material by tackifying one or more surface regions of the layer of patternable material for use in formation of light emitting elements on the conductive surface.
50. **(Original)** The method of claim 49, wherein the method further includes applying light emitting material to at least the tackified one or more surface regions of the electrophoretically deposited patternable material and removing the electrophoretically deposited patternable material to form the one or more light emitting elements on the conductive surface.
51. **(Original)** The method of claim 49, wherein the one or more nonconductive regions include one or more nonconductive light emitting elements.
52. **(Original)** The method of claim 49, wherein the one or more nonconductive regions include a nonconductive light absorptive black matrix.
53. **(Original)** A method for use in the production of a color display to deposit a pattern of light emitting elements capable of emitting light of at least two different colors when excited, the

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display including a face plate having a plurality of spacers extending from one side thereof for use in spacing the face plate from a base plate of the color display, the method comprising:

providing a face plate substrate assembly from which the plurality of spacers extend, a conductive surface of the substrate assembly is exposed in regions between the plurality of spacers; and

using an electrophoretically deposited patternable material to form the pattern of light emitting elements on the conductive surface, wherein using electrophoretically deposited patternable material to form the pattern of light emitting elements on the conductive surface includes:

electrophoretically depositing a layer of patternable material on at least the conductive surface;

tackifying one or more regions of the layer of patternable material corresponding to first color light emitting elements;

forming light emitting material of a first color on the tackified regions of the patternable material;

repeatedly tackifying the patternable material and forming light emitting elements to form one or more light emitting elements of one or more additional colors on the conductive surface; and

removing the layer of patternable material resulting in the formation of a plurality of light emitting elements of a plurality of colors on the conductive surface.

54. **(Original)** The method of claim 53, wherein the plurality of spacers are nonconductive spacers.

55. **(Original)** The method of claim 53, wherein at least portions of the plurality of spacers are slightly conductive.

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56. **(Original)** A method for use in producing a display having a face plate and a base plate, the face plate having one or more spacers extending from one side thereof for spacing the face plate from the base plate in the display, the method comprising:

electrophoretically depositing a patternable material over a conductive surface of the face plate in regions adjacent one or more of the spacers;

patterning the patternable material resulting in a patterned layer defining openings to the conductive surface;

forming a light emitting material on the conductive surface through the defined openings;
and

removing the patterned layer.

57. **(Original)** The method of claim 56, wherein the one or more spacers are nonconductive spacers.

58. **(Original)** The method of claim 56, wherein at least portions of the one or more spacers are slightly conductive, and further wherein the electrophoretically depositing a patternable material includes depositing patternable material over the slightly conductive portions of the one or more spacers.

59. **(Original)** The method of claim 56, wherein forming the light emitting material on the conductive surface includes forming one or more conductive light emitting elements on the conductive surface through the defined openings.

60. **(Original)** The method of claim 56, wherein forming the light emitting material on the conductive surface includes forming one or more nonconductive light emitting elements on the conductive surface through the defined openings.

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61. **(Original)** The method of claim 60, wherein patterning the patternable material includes photostabilizing the patterned layer such that the patterned layer is generally insoluble to organic solvents.
62. **(Original)** The method of claim 61, wherein forming the one or more nonconductive elements includes electrophoretically depositing phosphor or phosphor containing material on the conductive surface through the defined openings.
63. **(Original)** A method for use in the production of a color display to deposit a pattern of light emitting elements capable of emitting light of at least two different colors when excited, the display including a face plate having a plurality of spacers extending from one side thereof for use in spacing the face plate from a base plate of the color display, the method comprising:
- providing a face plate substrate assembly from which the plurality of spacers extend, a conductive surface of the substrate assembly is exposed in regions between the plurality of spacers; and
 - using an electrophoretically deposited patternable material to form the pattern of light emitting elements on the conductive surface, wherein using electrophoretically deposited patternable material to form the pattern of light emitting elements on the conductive surface includes:
 - electrophoretically depositing and patterning a layer of patternable material resulting in a patterned layer defining first openings to the conductive surface for use in the formation of one or more first color light emitting elements on the conductive surface;
 - forming the one or more first color light emitting elements on the conductive surface through the first openings;
 - removing the patterned layer; and

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repeating the electrophoretically depositing, patterning, forming and removing steps to form one or more additional light emitting elements of one or more additional colors on the conductive surface.

64. **(Original)** The method of claim 63, wherein the plurality of spacers are nonconductive spacers.

65. **(Original)** The method of claim 63, wherein at least portions of the plurality of spacers are slightly conductive, and further wherein using electrophoretically deposited patternable material includes depositing patternable material over said slightly conductive portions of the spacers such that electrophoretically deposited light emitting material used to form the pattern of light emitting elements on the conductive surface is not formed on the slightly conductive portions.

66. **(Original)** The method of claim 63, wherein after electrophoretically depositing and patterning the layer of patternable material to define first openings therein to the conductive surface the method includes photostabilizing the patterned layer such that the patterned layer is generally insoluble to organic solvents; and further wherein forming the one or more first color light emitting elements includes forming one or more phosphor elements on the conductive surface by electrophoresis through the defined first openings.